

We Claim:

1. A method for inserting asynchronous data into a synchronous data stream comprising:
 - receiving information including a first time value when said asynchronous data may be used;
 - determining a transfer interval for said asynchronous data;
 - inserting said asynchronous data into said synchronous data stream at a time prior to said first time value by an amount that is greater than or equal to said transfer interval.
2. The method of claim 1 wherein said step of determining a transfer interval further comprises:
 - determining the file size of said asynchronous data;
 - determining a data transfer rate for said asynchronous data; and
 - dividing said file size by said data transfer rate to calculate a duration.
3. The method of claim 2 wherein said step of determining a transfer interval further comprises:
 - determining the ratio of data stream bandwidth available for transfer of said asynchronous data; and
 - modifying said duration by multiplying said duration by the inverse of said ratio.
4. The method of claim 3 wherein said step of modifying said duration further comprises:
 - obtaining a connect time; and
 - adding said connect time to said duration.

5. A method for inserting first asynchronous data and second asynchronous data into a synchronous data stream comprising:

receiving information comprising a first time value when said first asynchronous data may be used and a second value time when said second asynchronous information may be used;

determining a first transfer interval for said first asynchronous data;

determining a second transfer interval for said second asynchronous data;

and

commencing insertion of said first asynchronous data into said synchronous stream at a time prior to said second time value by a period of time greater than or equal to the sum of said first transfer interval and said second transfer interval.

6. A method for inserting first asynchronous data and second asynchronous data into a synchronous television broadcast stream comprising:

receiving information comprising a first time value when said first asynchronous data may be used and a second value time when said second asynchronous information may be used;

determining a first transfer interval for said first asynchronous data;

determining a second transfer interval for said second asynchronous data;

and

commencing insertion of said first asynchronous data into said synchronous television broadcast stream at a time prior to said second time value by a period of time greater than or equal to the sum of said first transfer interval and said second transfer interval.

7. A method for inserting asynchronous data into a synchronous television broadcast stream comprising:

receiving information including a first time value when said asynchronous data may be used;

determining a transfer interval for said asynchronous data;

inserting said asynchronous data into said synchronous television broadcast stream at a time prior to said first time value by an amount that is greater than or equal to said transfer interval.

8. The method of claim 7 wherein said step of determining a transfer interval further comprises:

- determining the file size of said asynchronous data;
- determining a data transfer rate for said asynchronous data; and
- dividing said file size by said data transfer rate to calculate a duration.

9. The method of claim 7 wherein said step of determining a transfer interval further comprises:

- determining the ratio of data stream bandwidth available for transfer of said asynchronous data; and
- modifying said duration by multiplying said duration by the inverse of said ratio.

10. The method of claim 7 wherein said step of modifying said duration further comprises:

- obtaining a connect time; and
- adding said connect time to said duration.

11. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:

- a database containing asynchronous data;
- an insertion controller containing a processor and program memory; and
- a software program operating on said insertion controller operable to determine a transfer interval for said asynchronous data and to commence insertion of said asynchronous data into said synchronous television broadcast stream at a time greater than or equal to the duration of said transfer interval prior to a time when said asynchronous data may be utilized.

12. The system of claim 11 wherein said software program further comprises:
 - a first software routine operable to determine a transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.
13. The system of claim 11 wherein said software program further comprises:
 - a second software routine operable to advance in time said commencement of said insertion of said asynchronous data by a period of time greater than or equal to a data access latency value.
14. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:
 - a server containing asynchronous data;
 - an insertion controller; and
 - a software program operating on said server operable to determine a transfer interval for said asynchronous data and to commence insertion of said asynchronous data into said synchronous television broadcast stream at a time greater than or equal to the duration of said transfer interval prior to a time when said asynchronous data may be utilized.
15. The system of claim 14 wherein said software program further comprises:
 - a first software routine operable to determine a transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.
16. The system of claim 14 wherein said software program further comprises:
 - a second software routine operable to advance in time said commencement of said insertion of said asynchronous data by a period of time greater than or equal to a data access latency value.
17. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:

a database containing first asynchronous data and second asynchronous data;

an insertion controller containing a processor and program memory; and

a software program operating in said insertion controller operable to determine a first transfer interval for said first asynchronous data and a second transfer interval for said second asynchronous data and to commence insertion of said first asynchronous data into said synchronous television broadcast stream at a time, greater than or equal to the duration of the sum of said first transfer interval and said second transfer interval, prior to a time when said second asynchronous data may be utilized.

18. The system of claim 17 wherein said synchronous data stream is an audio/video stream.

19. The system of claim 17 wherein said software program further comprises:

a first software routine operable to determine a first transfer rate and a second transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.

20. The system of claim 17 wherein said software program further comprises:

a second software routine operable to advance in time said commencement of said insertion of said first asynchronous data by a period of time greater than or equal to the sum of a first data access latency value for said first asynchronous data and a second data access latency value for said second asynchronous data.

21. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:

a server containing first asynchronous data and second asynchronous data;

an insertion controller; and

a software program operating in said server operable to determine a first transfer interval for said first asynchronous data and a second transfer interval for said second asynchronous data and to commence insertion of said first asynchronous data into said synchronous television broadcast stream at a time, greater than or equal to the duration of the sum of said first transfer interval and said second transfer interval, prior to a time when said second asynchronous data may be utilized.

22. The system of claim 21 wherein said software program further comprises:

a first software routine operable to determine a first transfer rate and a second transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.

23. The system of claim 21 wherein said software program further comprises:

a second software routine operable to advance in time said commencement of said insertion of said first asynchronous data by a period of time greater than or equal to the sum of a first data access latency value for said first asynchronous data and a second data access latency value for said second asynchronous data.

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